

## We Claim:

1           1. A method of manufacturing a liquid-crystal display  
2 element; the method comprising a rubbing step of bringing a rubbing  
3 roller the surface potential of which has been controlled into contact  
4 with an alignment film formed on the surface of a substrate member,  
5 to subject the alignment film to rubbing.

1           2. The manufacturing method according to claim 1, wherein  
2 the surface potential of said rubbing roller is controlled by bringing a  
3 charge control member into contact with the surface of said rubbing  
4 roller.

1           3. The manufacturing method according to claim 2, wherein  
2 the potential of said charge control member is controlled.

1           4. The manufacturing method according to claim 2, wherein  
2 said charge control member is covered with a material capable of  
3 being contact-charged to a polarity different from the potential of the  
4 substrate member surface.

1           5. The manufacturing method according to claim 1, wherein  
2 the surface potential of said rubbing roller is feedback-controlled in  
3 accordance with a measured value obtained by measuring the

4 potential of said rubbing roller and the potential of said substrate  
5 member.

1 6. A method of manufacturing a liquid-crystal display  
2 element; the method comprising:  
3 a rubbing step of bringing a rubbing roller into contact with an  
4 alignment film formed on the surface of a substrate member, to  
5 subject the alignment film to rubbing;  
6 the surface potential of said rubbing roller being controlled to  
7 have the same polarity as the potential of said substrate member.

1 7. The manufacturing method according to claim 6, wherein a  
2 charge control member is brought into contact with the surface of  
3 said rubbing roller, and the potential of said charge control member  
4 is controlled.

1 8. The manufacturing method according to claim 7, wherein  
2 said charge control member is covered with a material capable of  
3 being contact-charged to a polarity different from the surface  
4 potential of said substrate member.

1 9. The manufacturing method according to claim 6, wherein  
2 the surface potential of said rubbing roller is feedback-controlled in  
3 accordance with a measured value obtained by measuring the

4 potential of said rubbing roller and the potential of said substrate  
5 member.

1 10. A method of manufacturing a liquid-crystal display  
2 element; the method comprising:

3 a rubbing step of bringing a rubbing roller the surface potential  
4 of which has been controlled into contact with an alignment film  
5 formed on the surface of a substrate member, to subject the alignment  
6 film to rubbing;

7 the surface potential of said rubbing roller being so controlled  
8 that;

9 the potential of said substrate member and the surface potential  
10 of said rubbing roller have the same polarity in accordance with a  
11 measured value obtained by measuring the surface potential of said  
12 substrate member and the potential of said rubbing roller.

1 11. The manufacturing method according to claim 10, wherein  
2 the surface potential of said rubbing roller is controlled by;

3 bringing a charge control member into contact with the surface  
4 of said rubbing roller; said charge control member being covered  
5 with a material capable of being contact-charged to a polarity  
6 different from the surface potential of said substrate member.

1 12. An apparatus for manufacturing a liquid-crystal display

element; the apparatus comprising:

a stage for supporting a substrate member to be treated;

a rubbing roller for rubbing an alignment film provided on the surface of the substrate member; and

a charge control member for controlling the surface potential of the rubbing roller.

13. The manufacturing apparatus according to claim 12, wherein said charge control member is covered with a material capable of being contact-charged to a polarity different from the surface potential of said substrate member.

14. The manufacturing apparatus according to claim 12, which further comprises:

a first sensor for measuring the surface potential of said substrate member;

a second sensor for measuring the surface potential of said rubbing roller;

a charge control member brought into contact with the surface of said rubbing roller to control the potential of said rubbing roller; and

a controller which controls the potential of said charge control member in accordance with a measured value of the first sensor and a measured value of the second sensor so that the surface potential of

13 said rubbing roller has the same polarity as the potential of said  
14 substrate member.

1 15. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 1.

1 16. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 6.

1 17. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 10.